

**BEFORE THE  
PUBLIC SERVICE COMMISSION OF  
SOUTH CAROLINA**

**DOCKET NO. 2019-224-E  
DOCKET NO. 2019-225-E**

In the Matter of:

South Carolina Energy Freedom Act (House  
Bill 3659) Proceeding Related to S.C. Code  
Ann. Section 58-37-40 and Integrated  
Resource Plans for Duke Energy Carolinas,  
LLC and Duke Energy Progress, LLC

**DIRECT TESTIMONY OF  
DAWN A. SANTOIANNI  
ON BEHALF OF DUKE ENERGY  
CAROLINAS, LLC AND DUKE  
ENERGY PROGRESS, LLC**

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**I. INTRODUCTION AND PURPOSE**

**Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

A. My name is Dawn A. Santoianni. My business address is 411 Fayetteville Street, Raleigh NC 27601.

**Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

A. I am currently employed by Duke Energy Carolinas, LLC as State Energy Policy Director for North Carolina.

**Q. PLEASE DESCRIBE YOUR CURRENT RESPONSIBILITIES IN YOUR POSITION WITH DUKE ENERGY.**

A. I have responsibility for analyzing and identifying energy policies that will benefit Duke Energy Carolinas, LLC's ("DEC") and Duke Energy Progress, LLC's ("DEP") (collectively, the "Companies") customers, support the Companies' climate goals, and foster economic growth in the communities we serve. Because I represent the Companies in North Carolina, my responsibilities include actively participating in North Carolina's Clean Energy Plan ("NC CEP") stakeholder process. Participation in the NC CEP process entails meeting with diverse stakeholders to discuss the benefits and impacts of potential carbon policies, communicating information about the Companies' operations and planning, and identifying areas for alignment with stakeholders. In addition, I provide assistance to answer stakeholder, investor and media questions on energy policy issues.

**Q. PLEASE BRIEFLY SUMMARIZE YOUR EDUCATIONAL AND PROFESSIONAL EXPERIENCE.**

A. I have worked on energy policy and regulatory issues for over 20 years. I received my Bachelor of Science degree (B.S.) in mechanical engineering in 1991 from Stony Brook

1 University in New York. I received my Master of Science degree (M.S.) in mechanical  
2 engineering from North Carolina State University in August 1999. Over the course of my  
3 career, I have worked as an engineer for several infrastructure and consulting firms, owned  
4 a small business and worked in public relations, communications and policy roles. I have  
5 extensive experience with public policy, including regulatory impact analysis, economic  
6 studies of proposed policies, regulatory commenting, and environmental compliance  
7 documentation. In 2011, I testified before a congressional subcommittee on the technical  
8 and economic impacts of proposed alternative environmental regulations. From 2011 to  
9 2015, I owned a technical communications firm that provided writing, technical analyses,  
10 and educational services to companies and nonprofits in the energy industry. Since joining  
11 Duke Energy in 2015, I have served in several roles: as lead communications consultant  
12 working on federal policy issues, as federal energy policy director analyzing numerous  
13 environmental regulations and public policies, and now as state policy director. As federal  
14 energy policy director, I worked on the climate report that was published in March 2018  
15 by Duke Energy Corporation (“Duke Energy”). I moved into my current role as State  
16 Energy Policy Director in March 2020.

17 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE PUBLIC SERVICE**  
18 **COMMISSION OF SOUTH CAROLINA (“COMMISSION”)?**

19 A. No.

20 **Q. ARE YOU INCLUDING ANY EXHIBITS IN SUPPORT OF YOUR TESTIMONY?**

21 A. Yes. I am sponsoring three exhibits, which are described below:

- 22 • **Santoianini DEC/DEP Exhibit 1** is Duke Energy’s 2020 Climate Report to  
23 Shareholders (“Climate Report”).

- **Santoianni DEC/DEP Exhibit 2** is the Companies' comments on the draft NC CEP.

- **Santoianni DEC/DEP Exhibit 3** is the final NC CEP.

**Q. FOR WHAT REASON ARE YOU OFFERING THESE DOCUMENTS AS EXHIBITS?**

A. Duke Energy's 2020 Climate Report to Shareholders (Santoianni DEC/DEP Exhibit 1) and comments on the draft NC CEP (Santoianni DEC/DEP Exhibit 2) are offered for the Commission's reference and information. These documents include statements of policy reflecting the Companies' positions on these issues. In my position as State Energy Policy Director and my prior position in federal policy, I have been involved in developing or reviewing positions and content described in the documents. Likewise, the final NC CEP (Santoianni DEC/DEP Exhibit 3) is being offered to provide information as to policies under consideration in North Carolina.

**Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?**

A. The purpose of my testimony is to provide my perspective on the carbon policies under consideration in North Carolina as part of the NC CEP, the intersection of these policies with the Companies' filed Integrated Resource Plans ("IRPs"), and how the Companies evaluate the impact of potential policies on customers across our South Carolina and North Carolina service territories. My testimony will also provide my assessment on how investors and stakeholders have viewed our 2020 IRPs, our climate goals and the NC CEP goals.

**II. NORTH CAROLINA ENERGY POLICY IS GERMANE TO THESE**  
**PROCEEDINGS**

**Q. WHY IS THE DISCUSSION OF NORTH CAROLINA ENERGY POLICY GERMANE TO THE SOUTH CAROLINA IRP PROCEEDINGS?**

A. The policies under consideration in North Carolina, as part of the NC CEP, are germane to these proceedings because carbon policies that may be enacted in North Carolina could impact the Companies' resource planning, the generation mix used to serve South Carolina customers, and the costs associated with such changes. Further, some policies under consideration in North Carolina would impose a cost on the energy generated from carbon emitting resources, such as coal and natural gas. These types of carbon pricing policies would have a direct impact on the costs for generating electricity for our South Carolina customers.

**Q. WHAT IS NORTH CAROLINA EXECUTIVE ORDER 80?**

A. North Carolina Executive Order 80 ("E.O. 80") was signed by Governor Cooper in October 2018, establishing "North Carolina's Commitment to Address Climate Change and Transition to a Clean Energy Economy."<sup>1</sup> E.O. 80 directed the North Carolina Department of Environmental Quality ("NCDEQ") to develop a Clean Energy Plan that encourages the development of clean energy, including solar, wind, energy storage, energy efficiency, and other technologies, and the modernization of the electric grid to improve resiliency. E.O. 80 directed NCDEQ to deliver such plan by October 1, 2019. To develop the plan, NCDEQ convened a year-long stakeholder process that solicited feedback from more than 160

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<sup>1</sup> North Carolina Exec. Order No. 80 (Oct. 29, 2018). Available at: <https://governor.nc.gov/documents/executive-order-no-80-north-carolinas-commitment-address-climate-change-and-transition>

different stakeholder groups. Duke Energy submitted written comments on the draft NC CEP, included as Exhibit 2, highlighting the critical role of existing, carbon-free nuclear energy and natural gas in meeting climate goals, maintaining affordability and reliability as highest priorities for our customers, and our obligation to serve customers in both North and South Carolina. The final NC CEP<sup>2</sup>, included as Santoianni DEC/DEP Exhibit 3 to my testimony, was delivered to the governor on October 1, 2019.

**Q. PLEASE GENERALLY DESCRIBE THE NORTH CAROLINA GOVERNOR'S CLEAN ENERGY PLAN.**

A. The NC CEP established three goals<sup>3</sup>:

1. Reduce electric power sector greenhouse gas emissions by 70% below 2005 levels by 2030 and attain carbon neutrality by 2050;
2. Foster long-term energy affordability and price stability for North Carolina's residents and businesses by modernizing regulatory and planning processes; and
3. Accelerate clean energy innovation, development, and deployment to create economic opportunities for both rural and urban area of the state.

The NC CEP included the following recommendations to achieve these goals<sup>4</sup>:

- Develop carbon reduction policy designs for accelerated retirement of uneconomic coal assets and other market-based and clean energy policy options.

<sup>2</sup> North Carolina Department of Environmental Quality, State Energy Office, "North Carolina Clean Energy Plan." (Oct. 2019). Available at:

[https://files.nc.gov/ncdeq/climate-change/clean-energy-plan/NC\\_Clean\\_Energy\\_Plan\\_OCT\\_2019\\_.pdf](https://files.nc.gov/ncdeq/climate-change/clean-energy-plan/NC_Clean_Energy_Plan_OCT_2019_.pdf)

<sup>3</sup> *Id.* at 12.

<sup>4</sup> *Id.*

- Develop and implement policies and tools such as performance-based mechanisms, multiyear rate planning, and revenue decoupling, that better align utility incentives with public interest, grid needs, and state policy.
- Modernize the grid to support clean energy resource adoption, resilience, and other public interest outcomes.

**Q. PLEASE DESCRIBE THE STAKEHOLDER PROCESSES ASSOCIATED WITH THE NC CEP.**

A. My assessment of the stakeholder processes is based on direct participation and my understanding of the policies involved. Importantly, the NC CEP, in itself, is not a policy or mandate. Any policy or regulatory changes would likely require enabling legislation. As a result of the recommendations in the plan, North Carolina commenced two stakeholder processes: 1) a carbon policy working group, facilitated by Duke University's Nicholas Institute of Environmental Policy Solutions ("Nicholas Institute") and the University of North Carolina at Chapel Hill Center on Climate, Energy, Environment & Economics ("UNC CE3"), aimed at analyzing carbon reduction policies to achieve the NC CEP goal of 70% reduction in greenhouse gases from the electric power sector by 2030, also known as the "A-1" process<sup>5</sup> and 2) a regulatory reform stakeholder process facilitated by Rocky Mountain Institute ("RMI") and the Regulatory Assistance Project ("RAP") to evaluate alternative ratemaking, known as the "B-1" process.<sup>6</sup> Duke Energy is actively engaged in both of these stakeholder processes. Other stakeholders include representatives

<sup>5</sup> *Id.* at 59. Recommendation A-1 is to "[d]eliver a report that recommends carbon-reduction policies and the specific design of such policies that best advance core values, such as GHG emission reductions, electricity affordability, and grid reliability."

<sup>6</sup> *Id.* at 67. Recommendation B-1 is to "[l]aunch a North Carolina energy process with representatives from key stakeholder groups to design policies that align regulatory incentives and processes with 21st Century public policy goals, customer expectations, utility needs, and technology innovation."

1 from the solar industry, manufacturers, large customers, North Carolina Public Staff, and  
2 other consumer advocates, environmental non-governmental organizations, academic  
3 institutions, municipalities, and other utilities.

4 The focus of the stakeholder processes is to analyze potential policy changes and  
5 determine which policies could garner broad stakeholder support. Stakeholders began  
6 meeting in person earlier this year, and then virtually starting in March due to COVID-19  
7 concerns. In these meetings, stakeholders discuss policy options and offer their  
8 perspectives based on the constituencies they represent. While some stakeholders may  
9 focus on a single objective, utilities hold a unique role as the only stakeholders with a  
10 regulatory obligation to serve under North Carolina, South Carolina, and FERC/NERC  
11 oversight. In these meetings, Duke Energy represents the interests of customers across our  
12 DEP and DEC service territories.

13 **Q. WHAT ARE THE EXPECTED OUTPUTS OF THE NC CEP STAKEHOLDER**  
14 **PROCESS AND POTENTIAL OUTCOMES?**

15 A. The output of the A-1 carbon policy working group is a report that is scheduled to be  
16 delivered to North Carolina governor by January 15, 2021. This report will include a  
17 discussion of four potential carbon policy “pathways” that the Nicholas Institute is  
18 modeling, with assistance from the consulting firm ICF. These four policy pathways are:

- 19 1. Accelerated coal retirements
- 20 2. Carbon adder (carbon price) in planning and/or dispatch
- 21 3. NC creating or joining a carbon market
- 22 4. Clean Energy Standard

1           In addition to examining each of these pathways as standalone policies,  
2 combinations of policies are also being modeled and considered. Both the Nicholas  
3 Institute and ICF are using proprietary capacity expansion models to evaluate these policy  
4 pathways. While stakeholders have attempted to identify potential policy design features,  
5 there is great uncertainty as to what a potential policy outcome could look like. Thus, the  
6 descriptions of the policy pathways below are high-level and intended to be illustrative of  
7 the different types of policies that are under consideration in North Carolina.

8       Accelerated Coal Retirements: The NC CEP modeling is evaluating the carbon reduction  
9 value associated with a variety of coal retirement scenarios, including retiring subcritical  
10 units by 2030, retirement of subcritical units and seasonal operation of supercritical units,  
11 and the retirement of all coal units by 2030.

12       Carbon Adder: The NC CEP modeling is evaluating a carbon “adder” or price on carbon  
13 in two ways. First, modeling will evaluate how a carbon adder in planning changes the  
14 capacity resource mix, similar to how DEC and DEP use a shadow price on carbon for  
15 resource evaluations in the IRPs. Second, the carbon adder will be modeled as a direct  
16 price on carbon emitting generation, applied as a cost per ton of carbon dioxide (“CO<sub>2</sub>”)  
17 emitted, to compel changes in dispatch decisions. The modeling is evaluating a range of  
18 carbon prices in planning and dispatch; the scenarios modeled will vary the initial price  
19 and annual escalation rates. These prices range from \$3.5 per ton to \$42 per ton of CO<sub>2</sub>  
20 beginning in 2021, with escalation rates up to \$7 per ton per year. As of the writing of this  
21 testimony, there remains uncertainty as to the number of modeling scenarios and prices  
22 that will ultimately be included in a final report.

1        Carbon Markets: The impact on carbon emissions and costs associated with North Carolina  
2        developing a state-led carbon trading program or joining the Regional Greenhouse Gas  
3        Initiative (“RGGI”) is being modeled. RGGI is a mandatory carbon market comprised of  
4        10 states (Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New  
5        Jersey, New York, Rhode Island, and Vermont). Virginia is scheduled to join RGGI in  
6        2021. In a carbon market, utilities must hold allowances for each ton of CO<sub>2</sub> emitted  
7        annually from electricity generation. The number of allowances available is calculated by  
8        establishing a mass cap on emissions based on targeted emissions reductions relative to a  
9        baseline year. Allowances can be allocated by the state or auctioned. In the case of RGGI,  
10       a regional budget for CO<sub>2</sub> emissions is established with input from each member state.  
11       Covered electric generating units comply by purchasing allowances from quarterly  
12       auctions, purchasing allowances from other generators within the region, holding allocated  
13       allowances to cover their emissions, or conducting carbon offset projects. The most recent  
14       data from RGGI has an auction clearing price of \$6.82 per ton.

15       Clean Energy Standard: A clean energy standard (“CES”) is similar to a Renewable Energy  
16       and Energy Efficiency Portfolio Standard (“REPS”) but is agnostic to technology. How  
17       “clean energy” sources are defined is a policy design consideration, with some state CES  
18       programs defining only zero emitting sources as clean, while other programs establish an  
19       emission rate standard to identify technologies that qualify. Typically, existing nuclear  
20       generation qualifies as clean. Similar to credits awarded in a REPS, a CES may award  
21       clean energy credits which can be banked, borrowed and traded. The NC CEP modeling  
22       is exploring a CES standard based on percentage of North Carolina electricity sales (i.e.  
23       setting an annual target for percent of electricity generation from clean sources

1 corresponding to the NC CEP emissions goal) and a CES based on an emission rate  
2 computed assuming projected electricity demand in 2030 and 70% reduction in greenhouse  
3 gas emissions.

4 Carbon policy pathways will be modeled and compared for their efficacy in  
5 reducing emissions, costs and changes to the resource mix. Nicholas Institute has indicated  
6 that some layering of policies will be modeled and may include combinations such as coal  
7 retirements plus RGGI and a CES plus RGGI. Other combinations may also be modeled.  
8 The results of this modeling will be included in a report being written by the Nicholas  
9 Institute and UNC C3E delivered to the North Carolina governor. Stakeholders will have  
10 an opportunity to provide feedback on a draft report before it is delivered to the governor.  
11 While this report is expected to reflect some of the policy issues discussed by stakeholders,  
12 it will not present a consensus view on future carbon policy. As previously noted, any  
13 policy changes resulting from the NC CEP process would likely require legislation.

14 The B-1 regulatory reform process is exploring retired asset treatment (including  
15 securitization for coal net book value), decoupling, performance-based ratemaking and  
16 performance incentive measures, multi-year rate plans, competitive procurement, and  
17 wholesale markets. The expected output could be recommendations for legislative changes  
18 or studies of regulatory changes to align ratemaking with the carbon reduction goals in the  
19 NC CEP and other stakeholder priorities. Stakeholders are looking at draft legislative  
20 language from other states to inform these discussions. At the time of preparing this  
21 testimony, it is too early to determine what specific outputs of these process could look  
22 like.

1   **Q.     WILL THE NC CEP PROCESS RESULT IN CHANGES IN LAW?**

2   A.     No. The NC CEP process will not necessarily result in changes in law, as this is dependent  
3           on a number of factors including the level of stakeholder consensus for policy changes,  
4           political feasibility and other state priorities.

5   **Q.     HOW COULD THE NC CEP AFFECT RESOURCE PLANNING IN THE**  
6           **CAROLINAS FOR DEC AND DEP?**

7   A.     If the NC CEP does result in legislation that mandates one of the carbon policies described  
8           above, resource planning for DEC and DEP could be affected. How planning is altered  
9           would be dependent on the specifics of the policy enacted. Certain policies may not  
10          significantly change how planning is conducted but would affect dispatch. Other policies  
11          would have more impact on planning than dispatch, and some policies may affect both.  
12          Accelerating coal retirements would require the build out of replacement capacity  
13          resources. This type of policy could be consistent with the “Earliest Practicable Coal  
14          Retirements” portfolio presented in the IRPs, depending on the retirement dates. It is  
15          expected that North Carolina joining RGGI would not have a significant near-term impact  
16          on resource planning due to the relatively modest allowance price. Rather, joining RGGI  
17          would likely alter dispatch, rather than change the capacity mix. A mandated carbon adder  
18          in planning would directly affect least-cost planning by making the economics of carbon  
19          emitting generation (coal and natural gas) less attractive. In comparison, renewables would  
20          be more economical, and least-cost planning would presumably select additional solar and  
21          battery storage. However, the technological characteristics of these resources would not  
22          change, so to meet DEC’s and DEP’s regulatory obligation to serve load, there may still be  
23          some amount of carbon emitting capacity (presumably natural gas) needed for system

1 operability. This type of policy is most similar to the “Base with Carbon Policy” modeled  
2 in the IRPs, depending on the carbon price and escalation rate that may be selected.

3 While a carbon price in dispatch would in the short-term affect the merit order of  
4 fossil units, a carbon price on emissions could have a long-term effect of shifting resource  
5 planning to lower emitting generation. The overall impact on planning would be directly  
6 related to when a carbon price is imposed, the level of the carbon price, and how that adder  
7 escalates over time. Finally, if a clean energy standard or similar policy establishes targets  
8 for percent energy derived from zero or low emitting resources, that would impact the mix  
9 of resources to fulfill such a regulatory mandate and reliably meet customer demand.  
10 Similar to other policy design considerations, the timing and stringency of targets would  
11 influence the level of impact on resource planning. At this time, because these policies are  
12 conceptual, there is significant uncertainty in how planning could be affected.

13 **Q. TO YOUR KNOWLEDGE, WERE SOUTH CAROLINA STAKEHOLDERS**  
14 **INVITED TO BE PART OF THE PROCESS?**

15 A. It is my understanding that feedback was solicited from any stakeholder wishing to  
16 participate during the development of the NC CEP. Stakeholders had the opportunity to  
17 provide feedback in regional listening sessions held throughout North Carolina and in  
18 facilitated workshops during 2019, or by providing online input. After the publication of  
19 the final NC CEP, NCDEQ initiated a stakeholder process to discuss specific policy  
20 pathways and invited a range of stakeholders, including groups that are also active in South  
21 Carolina. Recently Nicholas Institute hosted public webinars on the process that allowed  
22 any member of the public to participate.

1 **Q. HAVE SOUTH CAROLINA STAKEHOLDERS BEEN A PART OF THAT**  
2 **STAKEHOLDER PROCESS IN NORTH CAROLINA?**

3 A. To my knowledge, a few South Carolina residents submitted comments to the record during  
4 the development of the NC CEP. NCDEQ has published a compilation of comments  
5 received on the draft Clean Energy Plan.<sup>7</sup> Several stakeholders that have been involved in  
6 policy or utility matters or otherwise involved in South Carolina proceedings are also  
7 involved in the NC CEP stakeholder process.

8 **Q. PLEASE PROVIDE EXAMPLES OF SOME OF THE PARTICIPANTS IN THE NC**  
9 **CEP DISCUSSIONS.**

10 A. Stakeholders and environmental groups actively involved in the CEP discussions include  
11 Dominion Energy, Inc., Southern Environmental Law Center (SELC), Sierra Club,  
12 Environmental Defense Fund (EDF), North Carolina Sustainable Energy Association  
13 (NCSEA), Vote Solar and Cypress Creek Renewables.

14 **Q. PLEASE DESCRIBE DUKE ENERGY CORPORATION'S CLIMATE GOALS.**

15 A. Duke Energy Corporation has held carbon reduction goals for many years. As one of the  
16 nation's largest electricity providers, Duke Energy is committed to the environment and is  
17 doing its part to address climate risks by investing in resilient infrastructure and delivering  
18 cleaner, sustainable energy for its customers. Duke Energy's 2017 goal to reduce carbon  
19 emissions 40% by 2030 was one of the industry's most ambitious at the time. Through  
20 2019, Duke Energy has already reduced CO<sub>2</sub> emissions 39% since 2005. Sustained, low

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<sup>7</sup> North Carolina Department of Environmental Quality and State Energy Office. "North Carolina Clean Energy Plan Transitioning to a 21st Century Electricity System, Supporting Document, PART 4: Stakeholder Engagement Process & Comments." October 2019. Available at: <https://files.nc.gov/ncdeq/climate-change/clean-energy-plan/4.-Stakeholder-Chapter-FINAL-10.24.19.pdf>

1 natural gas prices and declining costs for renewables and storage have allowed Duke  
2 Energy to accelerate that goal to at least 50% reduction by 2030. Duke Energy expects it  
3 can achieve significant reductions in carbon emissions by 2050 with the technology that  
4 exists today. Getting to net-zero emissions will require innovation and new technologies.  
5 Duke Energy has reported progress toward its carbon goals annually in Duke Energy's  
6 Sustainability Report and to the Carbon Disclosure Project. Duke Energy's climate goals,  
7 along with an illustrative pathway to achieve net zero, are detailed in Duke Energy's 2020  
8 Climate Report (Santoian DEC/DEP Exhibit 1). The Climate Report and reporting on  
9 these goals is responsive to stakeholder and investor interest in Environmental,  
10 Sustainability and Governance ("ESG") metrics. Because these climate goals are an  
11 enterprise initiative, Duke Energy will work with stakeholders to chart the specific paths  
12 forward in each jurisdiction.

13 **Q. HOW DOES THE NC CEP COMPARE TO THE CLIMATE GOALS OF DUKE**  
14 **ENERGY CORPORATION?**

15 A. The NC CEP goal is to reduce statewide greenhouse gas emissions from the power sector  
16 70% by 2030 compared to 2005, and to achieve carbon neutrality by 2050. There are three  
17 important points to consider with respect to the difference between the NC CEP goals and  
18 the Duke Energy's climate goals. First, the NC CEP goals are for the entire power sector  
19 in North Carolina, not just DEC and DEP. And while DEC and DEP supply the majority  
20 of power in North Carolina, compliance obligation from any potential state policy would  
21 depend on a number of factors that at this point would be purely speculative. Second, the  
22 referenced corporate climate goals are fleetwide, across the six states where we supply  
23 electric power. Third, the NC CEP goal is to reduce electric sector greenhouse gas

1 emissions, which includes other gases besides CO<sub>2</sub> with warming potential (primarily  
2 methane and nitrous oxide). While structurally and numerically distinct, the NC CEP goals  
3 and Duke Energy Corporation's climate goals are *consistent*. Importantly, the 2030 goal  
4 puts us on track to achieve net zero carbon emissions by 2050.

5 **Q. ARE BOTH THE NC CEP AND DUKE ENERGY CORPORATION'S CLIMATE**  
6 **GOALS CONSIDERED IN THE IRPs FILED BY DEC AND DEP?**

7 A. Yes. In developing the IRPs, the Companies were responsive to requests and interest from  
8 regulators, policymakers, and stakeholders by including portfolios that accelerated coal  
9 retirements, would achieve Duke Energy's climate goals, and meet the 2030 goal in the  
10 NC CEP. Notably, all of the pathways included in the 2020 IRPs keep Duke Energy on a  
11 trajectory to meet its carbon goals over the 15-year planning horizon. The IRPs also  
12 contain two portfolios that would meet the NC CEP goal of 70% reduction in carbon  
13 emissions by 2030 – the 70% CO<sub>2</sub> Reduction High Wind portfolio and the 70% CO<sub>2</sub>  
14 Reduction High SMR portfolio. While the IRPs are policy agnostic – meaning they do not  
15 model a specific carbon policy – the IRPs can be used to inform discussions in North  
16 Carolina about resource mixes and corresponding costs that would be needed to meet the  
17 NC CEP 70% goal.

18 **Q. WHAT ARE THE KEY FEATURES OF THE IRPs THAT ARE DEPENDENT**  
19 **UPON FUTURE CHANGES IN LAW OR REGULATION IN GENERAL?**

20 A. As regulated utilities, DEC and DEP are obligated to develop IRPs based on the policies  
21 in effect at that time. Consistent with Act 62 and NC requirements, the IRPs include a  
22 Base Without Carbon Policy portfolio that represents resource adequacy and capacity to  
23 serve anticipated peak electrical load with applicable planning reserve margins; consumer

1 affordability and least cost; compliance with applicable state and federal environmental  
2 regulations; power supply reliability; commodity price risks; and diversity of generation  
3 supply. To show the impact potential new policies may have on future resource additions,  
4 the 2020 IRPs also include portfolios with more ambitious carbon emission reduction  
5 targets, but which would require enabling policy. Specifically, all portfolios *except* the  
6 Base Without Carbon Policy would require enabling policy changes. Policy could take  
7 several forms, including a direct mandate to reduce carbon emissions by a specific  
8 percentage by a certain year, a policy that would include consideration of carbon emissions  
9 (or a carbon adder) in planning, a policy mandating coal retirements, participation in a  
10 carbon market, or a CES that would affect which resources qualify for compliance. Many  
11 of these policies are under discussion in the NC CEP process. The one thing all of these  
12 policies have in common is that it would mandate changes that may not be least cost,  
13 although not all of the policies may directly impact resource planning. In addition to  
14 reducing emissions, these policies could have corollary benefits, such as job creation,  
15 economic development, and mitigation of future policy risk. The consideration of these  
16 impacts is beyond the scope of the IRPs and the IRP process.

17 **Q. WHAT ARE THE KEY FEATURES OF THE IRPs THAT ARE DRIVEN**  
18 **PRIMARILY BY THE NC CEP DISCUSSIONS?**

19 A. The two portfolios that achieve the NC CEP 2030 goal of 70% reduction in greenhouse gas  
20 emissions are driven primarily by the NC CEP process. Regarding these two portfolios  
21 (70% CO<sub>2</sub> Reduction High Wind, 70% CO<sub>2</sub> Reduction High SMR), both would require  
22 enabling policies. In the case of the High Wind portfolio, policy would need to address  
23 least cost planning, expeditious onshore and offshore wind development and associated,

1 necessary transmission build by 2030. The High SMR case was another portfolio explored  
2 due to the stakeholder interest in advancing zero emitting, load-following technologies as  
3 part of a balanced plan to achieve net-zero carbon. In addition, the IRPs consider a No  
4 New Gas portfolio that helps address questions from stakeholders, including those involved  
5 in the NC CEP, on what mix of resources would be needed to meet demand without  
6 building new natural gas capacity.

7 **Q. WHAT ARE THE KEY FEATURES OF THE IRPs THAT SUPPORT DUKE**  
8 **ENERGY CORPORATION'S CLIMATE GOALS?**

9 A. The key features of the IRPs that support Duke Energy's climate goals are the retirement  
10 of coal units, the build out of solar and wind resources and leveraging natural gas and  
11 energy storage to balance the system and maintain reliability. Importantly, all of DEC's  
12 and DEP's IRP portfolios, including the Base Without Carbon Policy portfolio, put Duke  
13 Energy on a trajectory to achieve its climate goals. As the 2020 Climate Report<sup>8</sup> noted,  
14 there are multiple pathways and resource portfolios to achieve these climate goals. The  
15 Companies' IRPs demonstrate that the economic retirement of coal units underpins  
16 emissions reductions that can meet these goals.

17 **Q. HAVE THE NC CEP AND DUKE ENERGY CORPORATION'S CLIMATE**  
18 **GOALS RECEIVED STAKEHOLDER SUPPORT?**

19 A. Yes. Based on my experience participating in the NC CEP stakeholder process. Beginning  
20 with E.O. 80, the development of the Clean Energy Plan has benefitted from broad  
21 stakeholder involvement. While stakeholders participating in the process represent very  
22 diverse interests, there seems to be an intersection of support for investments in renewable

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<sup>8</sup> Santoianni DEC/DEP Exhibit 1.

1 energy, battery storage, energy efficiency and clean energy job creation. My interpretation,  
2 based on stakeholder comments on the draft Clean Energy Plan as well as comments that  
3 have been made during NC CEP stakeholder forums, is that stakeholders support coal  
4 retirements and investment in non-emitting energy resources. Stakeholders have also been  
5 very supportive of Duke Energy's climate goals and how those goals will be supported by  
6 DEC and DEP. For example, a number of stakeholders provided supportive comments  
7 when we announced our climate goals.<sup>9</sup>

8 **Q. HOW HAS THE INVESTMENT COMMUNITY REACTED TO THESE**  
9 **MATTERS?**

10 A. While I am not an expert in finance, a positive investor outlook generally results better  
11 valuation and lower costs of capital for customers. Valuation is important for the ability  
12 to attract capital to invest in infrastructure to serve customers. My assessment is that the  
13 investment community has responded positively to the potential for policy changes coming  
14 out of the NC CEP process, and the Duke Energy Corporation's long-term vision for  
15 investment in low and zero carbon resources. Over the last several years, corporate ESG  
16 disclosures and initiatives have become increasingly important to investors and credit  
17 rating agencies. As just one example, during and following the Duke Energy's recent ESG  
18 Investor Day on Oct. 9, 2020, the potential for the NC CEP to result in supportive policy  
19 was frequently discussed and reflected in analysts' reports.

20 There are several reasons for the interest in ESG matters. Large investment firms  
21 are taking long-term views to assess liability exposure and are focused on ESG issues that

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<sup>9</sup> "Duke Energy aims to achieve net-zero carbon emissions by 2050." September 17, 2019. Available at:  
<https://news.duke-energy.com/releases/duke-energy-aims-to-achieve-net-zero-carbon-emissions-by-2050>

1 could impact a firm's valuation. As a result, companies with favorable ESG reputations  
2 have been rewarded by the market and outperformed sector peers. ESG is also directly  
3 impacting credit ratings and the cost for capital, which affects the costs customers pay for  
4 system investments. Both S&P and Moody's integrate ESG factors into their risk  
5 assessment and ratings methodologies. For an electric utility company, greenhouse gas  
6 emissions are considered a "material" ESG issue that impacts valuation. As a result of  
7 these factors, my assessment is that investors are viewing the NC CEP, and Duke Energy's  
8 constructive participation in the stakeholder process in a positive light.

9 **Q. HOW HAS AFFORDABILITY AND IMPACTS ON CUSTOMER BILLS BEEN**  
10 **CONSIDERED IN THE NC CEP PROCESS?**

11 A. Cost impacts on customers and affordability are being considered both quantitatively and  
12 qualitatively in the NC CEP process. Quantitatively, the modeling of carbon policies is  
13 expected to produce estimates of the costs of each policy and combinations of policies.  
14 These costs will be limited to the costs of capacity to replace retired coal units and meet  
15 future customer demand, with some assumed costs for transmission upgrades. However,  
16 the overall costs of a particular policy would depend on numerous factors, including the  
17 specific resource mix that gets regulatory approval and is built, the location of those  
18 resources, and thus the costs of transmission needed to interconnect new resources.  
19 Further, there are several variables that can affect the cost of a carbon policy, including the  
20 design of such policy as well as customer-focused cost containment measures. ICF has  
21 been tasked with performing a retail rate analysis based on the cost outputs from the policy  
22 modeling. The NC CEP retail rate impact analysis is not expected to capture the full costs  
23 of any particular policy, but rather may be useful for comparing the relative cost-

effectiveness of different policies based on an average retail rate metric. The NC CEP stakeholder process is also addressing affordability from a qualitative perspective. A stakeholder subgroup has been meeting to discuss what affordability means to different customer classes, and different customers within customer classes. For example, the subgroup has discussed that manufacturers may view affordability based on how electric rates affect their competitiveness, while some retail customers that struggle to make ends meet would view affordability based on the overall amount of their monthly bill. The impacts of the COVID-19 pandemic have exacerbated these affordability concerns. It is expected that the final NC CEP report will include some qualitative discussion of affordability and equity.

**Q. DO YOU HAVE ANY ADDITIONAL INFORMATION TO SHARE?**

A. Yes. I would like to provide information on how Duke Energy evaluates potential policies and impacts on our system and our customers, especially for DEC and DEP. Because Duke Energy operates our DEC and DEP systems across the South Carolina and North Carolina state lines, we are cognizant that policies enacted in one state can affect customers in the other state. Thus, when analyzing potential policies, we look at impacts on our customers across our service territories – not just in one state. We have repeatedly raised this perspective in the NC CEP process. In analyzing policies, it is important to look at how the policy would affect planning, dispatch or both. It is also useful to compare policies to each other to determine whether one policy is more cost-effective than other, to examine how costs may increase or decrease over time, whether the policy has the potential to introduce cost “shocks,” or abrupt changes in compliance costs, and whether there are cost mitigation measures that could be introduced through policy design or implementation.

1           These are all considerations as we participate in ongoing policy discussions in the NC CEP  
2           and evaluate the modeling results.

3   **Q.     DOES THIS CONCLUDE YOUR TESTIMONY?**

4   A.     Yes. It does.